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AMSAT NEWS SERVICE
ANS-040

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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ANS-040 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 040.01
>From AMSAT HQ KENSINGTON, MD.
DATE 2020 Feb 09
To All RADIO AMATEURS
BID: $ANS-040.01

Clayton Coleman, W5PFG, Elected AMSAT President

At a special meeting held via teleconference, the AMSAT Board of Directors elected Clayton Coleman, W5PFG, President. Coleman previously served as a member of the Board of Directors from 2017-2019 and also served as AMSAT's Secretary during this time. He has also volunteered in several other capacities for AMSAT, including chairing the 2016 AMSAT Space Symposium held aboard the cruise ship Carnival Liberty.

Coleman’s first introduction to amateur radio in space was with SAREX and Mir. An interest in setting up an AX.25 BBS and nodes led to him trying out the Mir Personal Message System (PMS) and digipeater to make contacts in the early 1990s. It wasn’t until a visit from a

friend in 2011 that Coleman was bitten by the OSCAR bug and began his AMSAT journey chasing operating awards.

Having held other leadership roles in his community, nonprofits, and critical infrastructure, Coleman's desire is working with constituents to improve organizational processes and align them with strategic goals. Professionally, Coleman works in the industrial process control sector as both a consultant and business development manager. He resides in the North Texas area with his spouse and two children.

[ANS thanks the AMSAT Board of Directors and AMSAT President Clayton Coleman, W5PFG for the above information]

Phoenix CubeSat Upcoming Deployment

Several CubeSats are scheduled to be deployed from the ISS into orbit on 12 Feb. Among them is the Phoenix CubeSat, which is a 3U CubeSat developed by Arizona State University to study the effects of Urban Heat Islands through infrared remote sensing. Following deployment, the Phoenix operations team would appreciate as much help as possible with identifying the spacecraft and verifying that it is operational.

Phoenix is scheduled for a deployment time of *8:30 UTC* on 12 Feb.

Please note that two CubeSats being deployed on this date operate on the same frequency. Both Phoenix and QARMAN share the frequency of *437.35 MHz*, and both utilize an AX.25 9600 baud protocol with GMSK modulation. Both CubeSats will also be deployed within 1.5 hours of each other, and will therefore be close to each other in orbit. Please be mindful of this situation, and if you have any doubt about the CubeSat that you are receiving, please get in touch with Sarah Rogers, Project Manager, Phoenix CubeSat, sroger13 [at} asu.edu with any questions or concerns.

To read more about the Phoenix CubeSat, it's transmitter characteristics, and how you can decode the signal, please see the website at http://phxcubesat.asu.edu/content/amateur-operations!

[ANS thanks Sarah Rogers, KI7OOY, for the above information]

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on the vehicle before it was released, which happened on January 31st. HuskySat-1 was deployed from the delivery system later that day. Luca says he thinks it's really cool that the delivery system provides another way to gain access to space, and I couldn't agree more.

The Cygnus tour begins at 24:42 into the video, and the delivery system is mentioned at 26:57.

This link to the video goes directly to 24:42:

https://youtu.be/Snn1k_qEx20?t=1482

[ANS thanks John Brier, KG4AKV, for the above information]

Changes to AMSAT-NA TLE Distribution

The following satellite's NORAD CAT ID has been changed in this week's AMSAT TLE distribution:
OCULUS-ASR is now object NORAD CAT ID 44348

The following satellites have been deleted from this week's AMSAT TLE distribution:
OBJECT H - NORAD CAT ID 44346 (non-amateur satellite TEPCE, decayed February 1,2020)
OBJECT J - NORAD CAT ID 44347 (non-amateur satellite FALCONSAT-7)
TBEX-A - NORAD CAT ID 44356 (non-amateur satellite)

The following Amateur Radio satellite has been added to this week's TLE distribution:
HuskySat 1 - NORAD CAT ID 45117 (Cygnus NG-12 Spacecraft deployment, 1/31/2020).
(Thanks to Nico Janseen, PA0DLO, for satellite identification.)

[ANS thanks Ray Hoad, WA5QGD, AMSAT Orbital Elements Manager, for the above information]

HuskySat-1 Gains Enthusiastic Following

Initial reports indicate considerable interest among amateurs in tracking and capturing data from the newly deployed HuskySat-1. The satellite, designed at the University of Washington, was launched to the ISS by Cygnus NG-12 on November 2, 2019. It was deployed to a higher orbit from the ISS by Cygnus on January 31, and began telemetry transmissions on 435.800 MHz.

HuskySat-1’s 1,200 bps BPSK beacon is active and decodable with the latest release of AMSAT’s FoxTelem software. FoxTelem is available at https://github.com/ac2cz/FoxTelem

HuskySat-1 is a CubeSat, and will demonstrate onboard plasma propulsion and high gain telemetry for low Earth orbit that would be a precursor for an attempt at a larger CubeSat designed for orbital insertion at the Moon.

HuskySat-1 is expected to carry out its primary mission before being turned over to AMSAT for activation of a 30 kHz wide V/U linear transponder for SSB and CW.

Initially it looked like object 2019-071G was HuskySat-1, but our friends at the 18th Space Control Squadron published data on addi-

ional objects in recent days, and there is considerable evidence suggesting that HuskySat-1 is actually one of those instead. Element sets for objects 2019-071H and 2019-071J are now distributed in nasabare.txt as candidates for the "Real" HuskySat-1.

Usually element sets are good for a week or more, at least for ham purposes where we have fairly wide beam widths. The exception is the ISS, the only spacecraft we have in nasabare.txt that maneuvers, and we keep its element sets "fresh" by applying updates from Johnson Spaceflight Center several times per day. Husky-Sat 1 will be testing a thruster early in its mission, and endeavors to demonstrate a delta-V of 100m/sec or more. This could cause the accuracy of element sets to degrade more quickly than usual.

[ANS thanks Joe Fitzgerald, KM1P, AMSAT IT Team Leader for the above information]

Robert Bankston, KE4AL, Proposes amsatLink Project

amsatLink is a proposed three-phased program to ultimately establish a constellation of nanosatellites, linked in a peer-to-peer voice communications network for amateur satellite service. As a wireless ad hoc network, future satellites can be added to the network and ground stations, moving in and out of a nanosatellite node’s footprint, can easily join and exit the network.

The proposal is to create an IEEE 802.11 wireless ad hoc network, operating within the FCC Part 97 amateur radio frequency allocation of the 2.4 GHz microwave band. Individual satellite and ground nodes would connect directly, dynamically, and non-hierarchically to as many other nodes as possible and cooperate with one another to create one virtual network that can efficiently route data from/to clients.

While the idea of cross-link communication between satellites is not new, amsatLink hopes to continue the efforts of NASA’s PhoneSat, EDSN constellation, and NODES missions, by expanding the network to include ground-based nodes, demonstrating the use of voice over internet protocol communications, and organizing nodes into clusters, where each cluster consists of one nanosatellite node and any visible ground nodes.

amsatLink will continue NASA’s design philosophy by utilizing commercial-off-the-shelf hardware and keeping the design and mission objectives as simple as possible. Estimated total hardware cost per satellite is less than $5,000. Proposed ground stations will also use off the shelf equipment with a total estimated cost of less than $150.

For more details, see https://ke4al.github.io/amsatLink/ Robert seeks further discussion of this proposal among AMSAT members.

[ANS thanks Robert Bankston, KE4AL, for the above information]

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10 US Schools Moved Forward in ARISS Selection Process

Amateur Radio on the International Space Station (ARISS) is pleased to announce the schools and host organizations selected for the second half of 2020. Of the proposals submitted during the recent proposal window, 10 were accepted to move forward in the selection process for a scheduled amateur radio contact with a crew member on the ISS. The primary goal of the ARISS program is to engage young people in Science, Technology, Engineering, Arts and Math (STEAM) activities and raise their awareness of space communications, radio communications, space exploration, and related areas of study and career possibilities.

The schools and host organizations are now engaged in the next step of the acceptance process. When ready, they will be put in the scheduling queue for a contact during the July to December 2020 time period. Although ARISS expects to schedule all 10 during this period, changes to NASA crew availability might force some delays to the next time period.

The schools and host organizations are:

Estes Park Elementary School
Estes Park, CO

Green Bank Elementary School
Green Bank, WV

Tecumseh Public School
Tecumseh, OK

RSU #21
Kennebunk, ME

JFK High School
Denver, CO

Oregon Charter School
Mill City, OR

Newcastle High School
Newcastle, WY

Tarwater Elementary School
Chandler, AZ

Kopernik Observatory
Vestel, NY

Salem-South Lyon District Library
South Lyon, MI

[ANS thanks Dave Jordan, AA4KN, ARISS PR, for the above information]

AMSAT at Yuma (Arizona) Hamfest, 14-15 February 2020

AMSAT will be at the Yuma Hamfest, which is also serving as the 2020 ARRL Southwestern Division Convention, on Friday and Saturday, 14-15 February 2020. The hamfest will be at the Yuma County Fairgrounds, along 32nd Street, across the street from Yuma International Airport and Marine Corps Air Station Yuma, south of Interstate 8. More about the hamfest is available at:

http://www.yumahamfest.org/

WD9EWK will be on the satellites during the hamfest, demonstrating satellite operating. If you hear WD9EWK on a pass, please call and join in the demonstration. The hamfest site is in grid DM22, in Arizona's Yuma County. QSOs made during the hamfest will be uploaded to Logbook of the World, and QSL cards are available on request (please e-mail WD9EWK directly with the QSO details).

Patrick will tweet updates from the hamfest using the @WD9EWK Twitter account. If you do not use Twitter, you can see the tweets in a web browser at:

http://twitter.com/WD9EWK

In addition to the WD9EWK demonstration, AMSAT member Dave Bartholomew, AD7DB, will give a presentation "Getting Started on FM Satellites" on Saturday (15 February) morning at the hamfest. Dave's presentation is scheduled for 10:20 a.m.

[ANS thanks Patrick Stoddard, WD9EWK/VA7EWK, for the above information]

Hamfests, Conventions, Maker Faires, and Other Events

AMSAT Ambassadors provide presentations, demonstrate communicating through amateur satellites, and host information tables at club meetings, hamfests, conventions, maker faires, and other events.

Current schedule:

    February 14-15, 2020, Yuma Hamfest and ARRL Southwest Division
         Convention, Yuma, AZ (see details above)
    February 15, 2020, Cabin Fever Reliever Hamfest, Saint Cloud, MN
    March 6, 2020, Irving Hamfest, Irving, TX
    March 14-15, 2020, Science City, University of Arizona, Tuscon, AZ
    March 21, 2020, Midwinter Madness Hamfest, Buffalo, MN
    March 21, 2020, Scottsdale (AZ) Amateur Radio Club Hamfest
    March 28, 2020, Tucson Spring Hamfest, Tucson, AZ
    March 29, 2020, Vienna Wireless Winterfest, Annandale, VA
    May 2, 2020, Cochise Amateur Radio Assn. Hamfest, Sierra Vista, AZ
    May 8-9, 2020 Prescott Hamfest, Prescott, AZ
    May 15-17, Hamvention, Xenia, OH
    June 12-13, 2020, Ham-Con, Plano, TX

A copy of the AMSAT hamfest brochure is available for download: AMSAT Intro Brochure. This color brochure is designed to be printed double-sided and folded into a tri-fold handout.

To include your upcoming AMSAT presentation and/or demonstration, please send an email to ambassadors (at) amsat (dot) org.

[ANS thanks Robert Bankston, KE4AL, AMSAT VP-User Services, for the above information]

Upcoming Satellite Operations

Satellite Shorts
    Feb 15 CN78 ADODX FM and Linear (@ad0dx)
    Mar 14-15 DN26/36 KC7JPC Linears (and possibly FM)

#SnowBirdRove (EL79) – February 1-29, 2020
Joe, KE9AJ, will cross the border into Florida, seeking climatical asylum in EL79 for the entire month of February. Since he will be there for an extended period, with both FM and linear gear, keep an eye on Joe's Twitter feed for specific pass announcements: https://twitter.com/KE9AJ

Key West and Boca Grande Key (EL94, EL84+) February 9-11,2020
Clayton, W5PFG, will be in Key West, Florida (EL94) February 9 through the 11, 2020. Monday, February 10, 13:15-17:30 UTC, Clayton will operate FM & SSB satellites from EL84xm, Boca Grande Key. Listen for W5PFG near these dates for additional Florida grids, such as EL79, EL89, EL99, EL86, EL96, & EL95. Keep an eye on Clayton's Twitter feed for announcements https://twitter.com/w5pfg

Del Carmen Island (EK48cp) February 9, 2020
Ismael, XE1AY, will operate from Del Carmen Island (DL87th) on Sunday 9 February, using the callsign 4A2L (see QRZ). Ismael only expects to operate FM satellites for a couple of hours. In addition, they plan to operate CW, SSB, and FT8.

Isla Perez, Mexico (EL52, EL50, EL51) February 11 – 17, 2020
Members of Radio Club Puebla DX will be active as 6F3A from Isla Perez, Mexico, between February 11-17. The operators mentioned are Patricia/XE1SPM (Team Leader), Ismael/XE1AY, Eduardo/XE2YW and Ricardo/XE1SY. Activity will be on 80/40/20/17/15/12/10/6 meters, and include the ARRL DX CW Contest (February 15-16). QSL via XE1SY. Ismael, XE1AY, reports that he doing CW and the satellites, and will also TX from EL50 and XE1AY/mm from EL51.

Big Bend National Park (DL88) March 16-17, 2020
Ron AD0DX, Doug N6UA, and Josh W3ARD will operate from Big Bend National Park to put grid DL88 on the air. Details will be added here, as they come available, but you are more than welcome to keep an eye on their individual Twitter feeds: https://twitter.com/ad0dx, https://twitter.com/dtabor, and https://twitter.com/W3ARDstroke5

Please submit any additions or corrections to ke4al (at) amsat.org

[ANS thanks Robert Bankston, KE4AL, AMSAT VP-User Services, for the above information]

Operators Alex/VE1RUS and Pierre/VE3TKB will once again be active as VY0ERC from the Eureka Weather station between now and March 28th. This station is operated by the Eureka Amateur Radio Club [probably the most northerly located amateur radio club in the world] from Eureka, Nunavut, Canada. The suggested bands are 40 and 20 meters (possibly 80m), as well as FM satellites (from ER60, EQ79) using SSB, the Digital modes (FT8 and RTTY) and very slow CW. Activity will be limited to their spare time. QSL via M0OXO, OQRS or direct. For updates, see: https://twitter.com/vy0erc

[ANS thanks The Ohio/Penn Dx Bulletin for the above information]

Satellite Shorts From All Over

+ After setting a record for the longest single spaceflight in history by a woman, NASA astronaut Christina Koch returned to Earth on Feb. 6, along with Soyuz Commander Alexander Skvortsov of the Russian space agency Roscosmos and Luca Parmitano of the European Space Agency. Koch launched March 14, 2019. Her first journey into space

of 328 days is the second-longest single spaceflight by a U.S. astronaut and also places her seventh on the list of cumulative time in space for American astronauts. Full story: https://bit.ly/386BTrc
(ANS thanks spaceref.com for the above information)

+ SpaceX has been garnering all the headlines when it comes to satellite constellations. Their Starlink system will eventually have thousands of tiny satellites working together to provide internet access. But on Thursday, Feb. 6, OneWeb launched 34 satellite from the Baikonur Cosmodrome in Kazakhstan on a Soyuz launch vehicle. Eventually, OneWeb intends to have as many as 5,000 satellites in orbit.
(ANS thank universetoday.com for the above information)

+ An industry report forecasts demand for 14,000 to 20,000 new satellites to be launched in the next decade. The report suggests that launch slot availability will be a challenge for satellite operators, and that delays due to longer lead times and additional costs will put pressure on research, commercial, and military operators.
(ANS thanks satmagazine.com for the above information)

+ NASA declared the Spitzer Space Telescope’s 16-year mission complete on Thursday, Jan. 30 after sending final commands for the spacecraft to enter hibernation as it drifts farther from Earth. The Spitzer Space Telescope, one of NASA’s original four “Great Observatories,” studied the most distant galaxy ever observed in the universe, gathered data on the characteristics of planets around other stars, and detected a new ring around Saturn.
(ANS thanks spaceflightnow.com for the above information)

+ Finnish amateur photographers have discovered a new auroral form. Named 'dunes' by the hobbyists, the phenomenon is believed to be caused by waves of oxygen atoms glowing due to a stream of particles released from the Sun. In the study, published in the journal AGU Advances, the origins of the dunes were tracked to a wave guide formed within the mesosphere and its boundary, the mesopause.
(ANS thanks astrowatch.net for the above information)

+ The JAMSAT general meeting and space symposium will take place at the Tokyo, Odaiba, Science Museum on March 14 and 15.
(ANS thanks JAMSAT for the above information)

+ Bob Atkins KA1GT has documented his recent observations of interference to 1296 EME from the Galileo navigation satellites' E6 mode. Read Bob's article at https://bobatkins.com/radio/galileo-1296.html
(ANS thanks Southgate ARC for the above information)

+ Minutes of the 2019 AMSAT Board of Directors meeting are now available at https://www.amsat.org/minutes-of-the-board-of-directors/ The December 2018 Annual Financial Review report is also now available at https://www.amsat.org/audit-and-other-financial-reports/
(ANS thanks the AMSAT Office for the above information)

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership
at one-half the standard yearly rate. Post-secondary school students
enrolled in at least half time status shall be eligible for the stu-
dent rate for a maximum of 6 post-secondary years in this status.
Contact Martha at the AMSAT Office for additional student membership
information.

73 and Remember to help keep amateur radio in space,
This week's ANS Editor,

K0JM at amsat dot org